PERFECT ENTERTAINMENT. DUAL.

Dual

HIFI PROGRAM

Dual. The Hi-Fi Specialist.

Dual. The name has a sound reputation in consumer electronics. For instance, Dual turntables have always been synonymous with the state of the art.

In keeping with this successful tradition, we shall continue to develop equipment that is geared to the future in terms of technology, capabilities and level of operating convenience.

Today, more than ever before, this philosophy is winning the approval of consumers worldwide. It is based on a concept that combines innovative technology with superb design. The result is visionary engineering. In other words:

Perfect entertainment.

Progress built on experience.

Dual turntables have – by tradition – stood for quality of the highest order. Today, advanced Hi-Fi engineering gives the listener the opportunity to experience sound that is every inch as pure and as transparent as the original.

The phenomenal tonal quality for which Dual turntables are renowned is largely attributable to the carbon fibre headshell which optimizes the musical reproduction through its improved pick-up behaviour. The gyroscopic gimbal tonearm bearing is the very nub of the tonearm system. It holds the tonearm in perfect balance and, in conjunction with other technical refinements, ensures optimum tracking.

But it is not only the technology within that earns top marks for Dual turntables. In design, too, they are second to none.

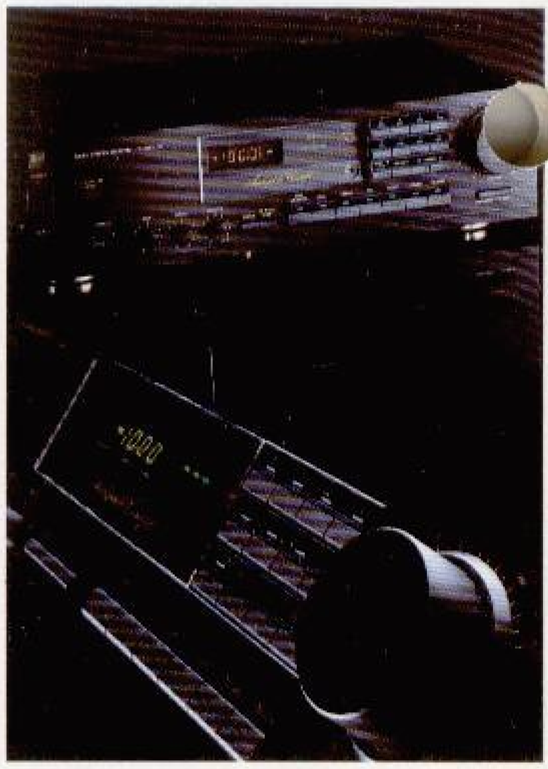
For details of Dual turntables, see page 4 onwards.



Two components combine to give quality without compromise.

Dual receivers are a noteworthy alternative to separate tuner/amplifier combinations. The integration of two components into one cabinet not only saves on space, but on cost too. And you can be sure of the same uncompromising quality that you would expect from Dual tuners and amplifiers. Among the outstanding features of these receivers are unadulterated and undistorted sound reproduction plus first-class user convenience (e.g. 16 memory locations). In short, Dual receivers are the perfect alternative thanks to their unbeatable combination of sophisticated technology and wide-ranging features.

For details of Dual receivers, see page 8 onwards.



Audiophile Concept

It takes fullness of sound to bring the music alive.

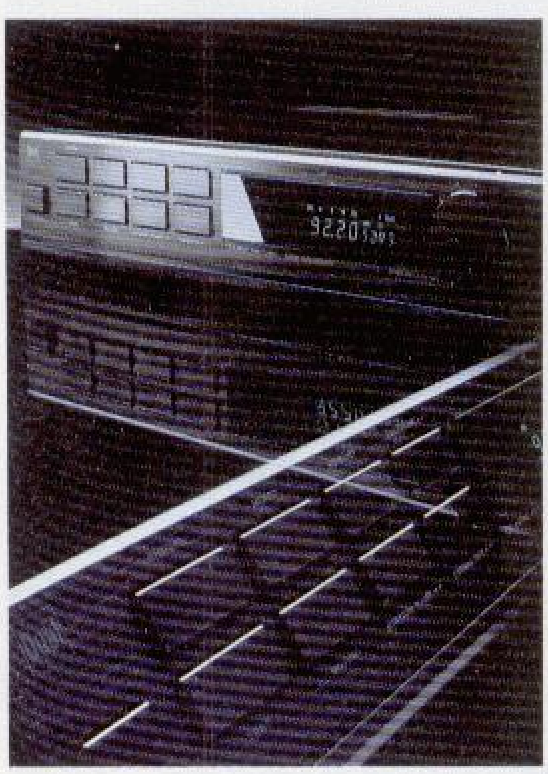
Both technically and visually, Dual amplifiers bring performance and function into perfect harmony. With their delicately defined acoustical qualities, they achieve a transparent tonal spectrum that is reproduced without the merest hint of distortion.

For details of Dual amplifiers, see page 10.

Advanced computer technology opens the door to a new era.

Inimitable sound, exclusive design, unbeatable quality. Dual guarantees all three with its experience and its name. Dual tuners are a clear expression of this ideology. They represent perfected, future-oriented Hi-Fi engineering at its most sophisticated.

For details of Dual tuners, see page 11.



Perfection is an ideal we're close to achieving.

The new CD players from Dual come very close to perfect listening pleasure. The pioneering technology we have employed produces sound of unsurpassed dynamics and purity.

Dual CD players will take you into a fascinating world of musical enjoyment where there is no place for the hiss and crackle of yesteryear. Outstanding sound quality is guaranteed by a combination of sophisticated techniques. Take the astigmatic method, for example. This optimized laser scanning system ensures excellent tracking under the most demanding conditions. Then there's oversampling to increase the scanning frequency. This reduces the harmonic distortion and results in frequency response of optimum linearity. And, of course, you can depend on superb operating facilities, such as remote control and a six-digit display.

With these CD players, Dual has achieved a new level of technical perfection, maximum versatility and optimum operating convenience.

For details of Dual CD players, see page 12 onwards.

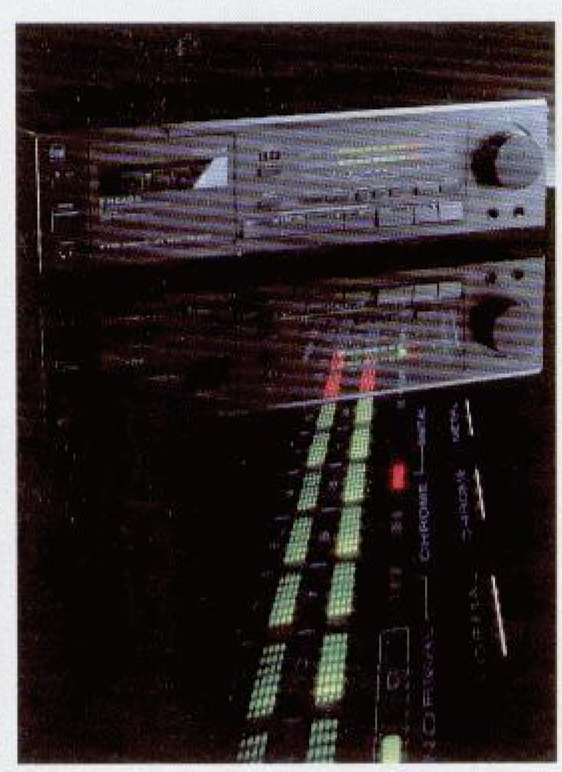


Convenience comes as standard with technology for the future.

Dual Hi-Fi cassette decks are the result of supreme engineering know-how aimed at quality of sound and durability of design. The high azimuth accuracy (the audio head is always at the correct angle to the direction of the tape) and the computer-controlled drive (which monitors and optimizes the tape transport) guarantee brilliant recordings and superb playback with clear, undistorted trebles.

The host of outstanding features testifies to the high standards of cassette decks from Dual. For instance: Full logic, HX Pro, amorphous audio head, repeat functions, music search system, peak recording level display and, last but not least, Dolby B and C Noise Reduction. It adds up to noise-free, crystal-clear music reproduction. With Dual's innovative technology and effective operating convenience, the difference is plain to hear.

For details of Dual cassette decks, see page 14.




Dual
Golden 1

Progress built on experience.

Dual Golden 1

Star performer CS 7000.

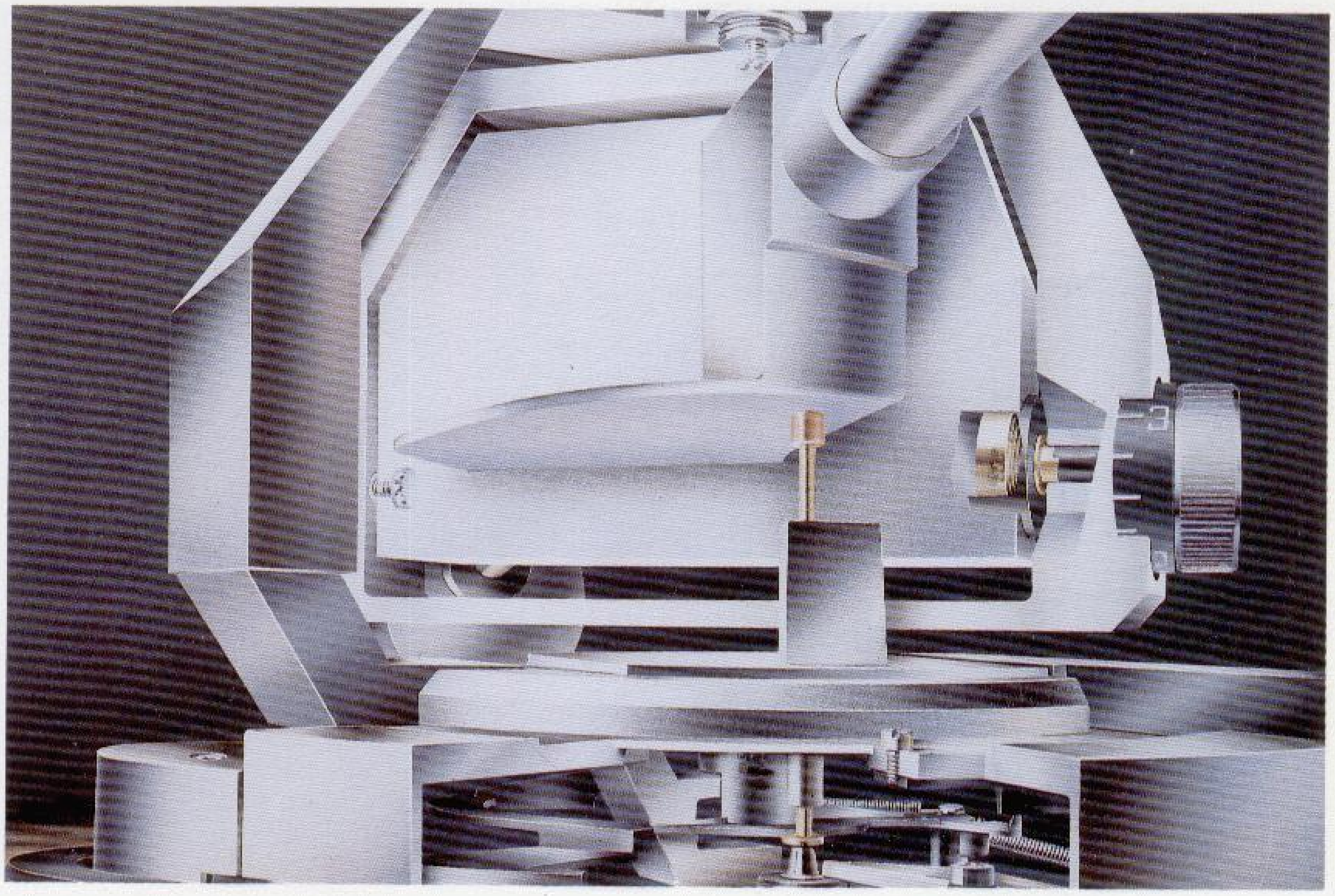
In terms of technology, this audiophile semi-automatic turntable from the top of the range fulfils the promise of its impressive design. All metal components are 24 carat gold plated, and the wood cabinet features a high-quality piano varnish finish in black.

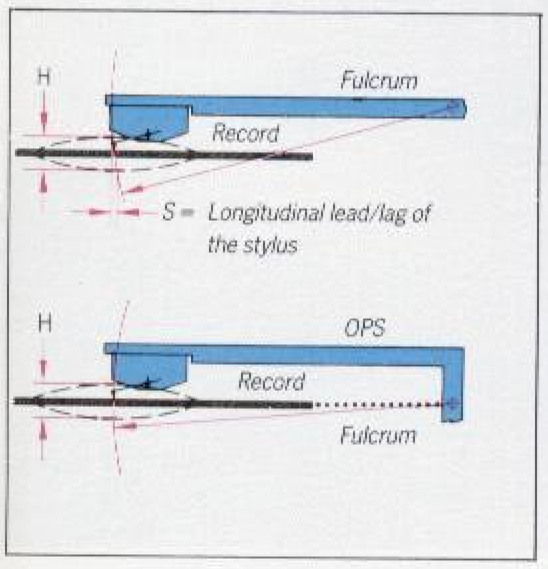
Tonearm:
- Gyroscopic gimbal tonearm with low-mass tracking thanks to high-precision torsion spring
- Optimum Pivot System for optimum tracking
- Detachable ½" headshell
- Adjustable tracking and anti-skating force
- Extremely rigid, one-piece headshell in carbon fibre
- Tonearm design optimised for fitting moving coil systems

Chassis:
- Full-size floating chassis
- Vibration-damped aluminium turntable with anti-resonance coating
- Record stabilizer

Drive:
- Quartz-controlled flat motor with speed monitoring by microprocessor
- Viscosity-damped cueing device
- Contact-free final switching off with tonearm lift
- Facility for playing 78 rpm shellac records







The Optimum Pivot System
The tonearm bearing is positioned lower. Consequently, the pick-up stylus lies more snugly in the record groove, and added wow and flutter due to undulations are no longer measurable.

Dual CS 5000

Among the best in tests.

The audiophile turntable that scores top marks in every department. A semi-automatic turntable with auto stop, belt drive, quartz control and adjustable floating chassis.

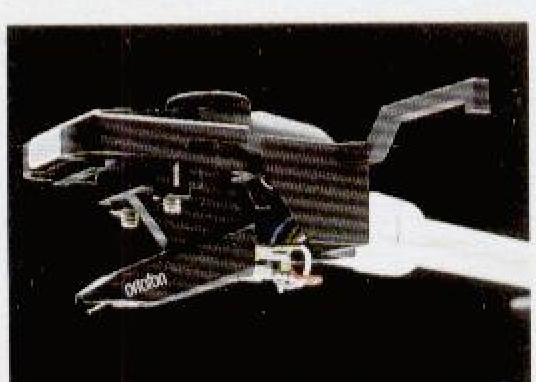
Tonearm:
- Gyroscopic gimbal tonearm with low-mass tracking force thanks to high-precision torsion spring
- Optimum Pivot System for optimum tracking
- Detachable ½″ headshell
- Vertical tracking angle correction
- Anti-skating
- Carbon fibre headshell

Chassis:
- Full-size floating chassis
- Vibration-damped aluminium turntable with anti-resonance coating

Drive:
- Quartz-controlled flat motor with speed monitoring by microprocessor
- Viscosity-damped cueing device
- Contact-free final switching off with tonearm lift







Carbon fibre headshell
Dual CS 505-3

Dual CS 505-3

A superior specification in a deceptively discreet design.

The "inner values" of this audiophile semi-automatic turntable with belt drive are guaranteed to satisfy the most demanding Hi-Fi enthusiast.

Tonearm:
- U.L.M. tonearm
- Gimbal tonearm mounting
- Low-mass tracking force
- Detachable ½″ headshell
- Carbon fibre headshell, detachable

Chassis:
- Full-size floating chassis
- Vibration-damped aluminium profile turntable
- Anti-resonance turntable coating

Drive:
- Belt drive with precision-ground flat belt
- 16-pole synchronous motor
- Fine speed adjustment 12%
- Adjustable tracking and anti-skating
- Viscosity-damped cueing device
- Pilot lift and automatic stop

Dual CS 455

Automatically yours: supreme sophistication.

An automatic Hi-Fi turntable that features a high level of operating convenience and first-class musical reproduction.

Tonearm:
- U.L.M. tonearm
- Gimbal tonearm mounting
- Adjustable tracking force
- Detachable ½″ headshell

Chassis:
- Floating sub-chassis
- Vibration-damped aluminium profile turntable
- Platter with anti-resonance coating

Drive:
- Belt drive with precision-ground flat belt
- Viscosity-damped cueing device
- DC motor with electronic speed monitoring

The CS 455 delivers the same superior performance as the **Dual CS 450** (not illustrated) semi-automatic turntable.



Dual CS 431

Music maker par excellence.

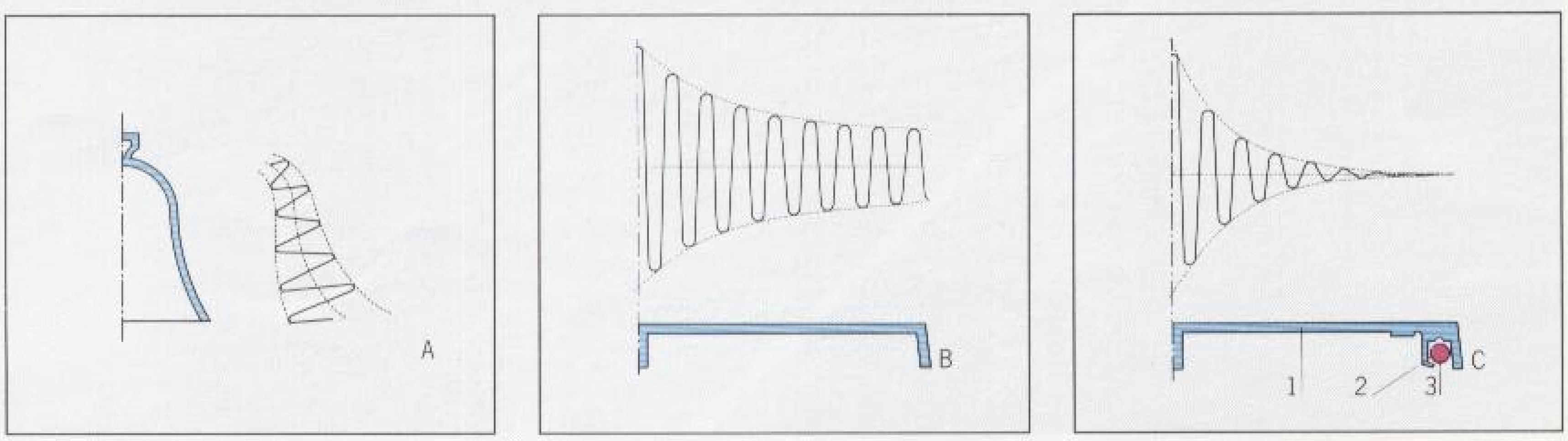
This semi-automatic Hi-Fi turntable with automatic tonearm return makes music an experience.

Tonearm:
- Headshell with ½″ mounting

Chassis:
- Floating sub-chassis
- Vibration-damped aluminium profile turntable
- Platter with anti-resonance coating

Drive:
- Belt drive with precision-ground flat belt
- Viscosity-damped cueing device
- DC motor with electronic speed monitoring





Vibration-damped aluminium profile turntable: "Golden 1", CS 5.000 and CS 505-3.

The oscillogram shows up very clearly the close resemblance between the vibration characteristics of a bell (A) and those of an undamped turntable platter (B). In contrast, figure C illustrates just how effectively the turntable platter is damped with the aid of an integrated heavy-metal ring and elastic coating for the platter.


Dual
POWER
AM/FM STEREO RECEIVER CR-5950 RC
FM MUTE OFF /MONO
PHONES
SPEAKERS
A
B
BASS
TREBLE
BALANCE
AM/FM
FM AUTO SCAN
FM 100.0 MHz
SIGNAL
STEREO
Audiophile Concept
SHIFT +8
MEMORY
TUNING
TAPE MONITOR
VIDEO 1
VIDEO 2
CD
TUNER
PHONO
MUTING
VOLUME
LOUDNESS
CD DIRECT

Two components combine to give quality without compromise.

Dual CR 5950 RC

Two in one.

Amplifier and tuner in one cabinet. That's the CR 5950 RC receiver. With remote control for all main functions. (Dual RC 50 infra-red remote control included).

Amplifier section:
- Rated output power at 8 ohms (DIN/IHF) 70/60 watts
- Dynamic output power at 4/8 ohms 85/130 watts
- 6 inputs
- Direct tape-to-tape recording
- Outputs for 2 loudspeaker pairs
- Direct switching of CD
- Loudness function
- Headphones connection
- Equalizer connection (separable preamplification/output stages)
- Double transistorized power stages

Tuner section:
- 2 wavebands (FM, MW)
- Quartz-precision station selection
- Digital frequency display
- Manual and automatic station search
- [illegible] memory locations
- [illegible]mory contents remain intact in event of mains power failure





Dual CR 5900

Twice the power.

This receiver combines a powerful amplifier with a high-performance tuner.

Amplifier section:
- Rated output power at 8 ohms (DIN/IHF) 45/35 watts
- Dynamic output power at 4/8 ohms 65/90 watts
- 5 inputs
- Outputs for 2 loudspeaker pairs
- Loudness circuit
- Headphones connection

Tuner section:
- 2 wavebands (FM/MW)
- Quartz-precision station selection
- Manual and automatic station search
- 16 memory locations
- Memory contents remain intact in event of mains power failure.

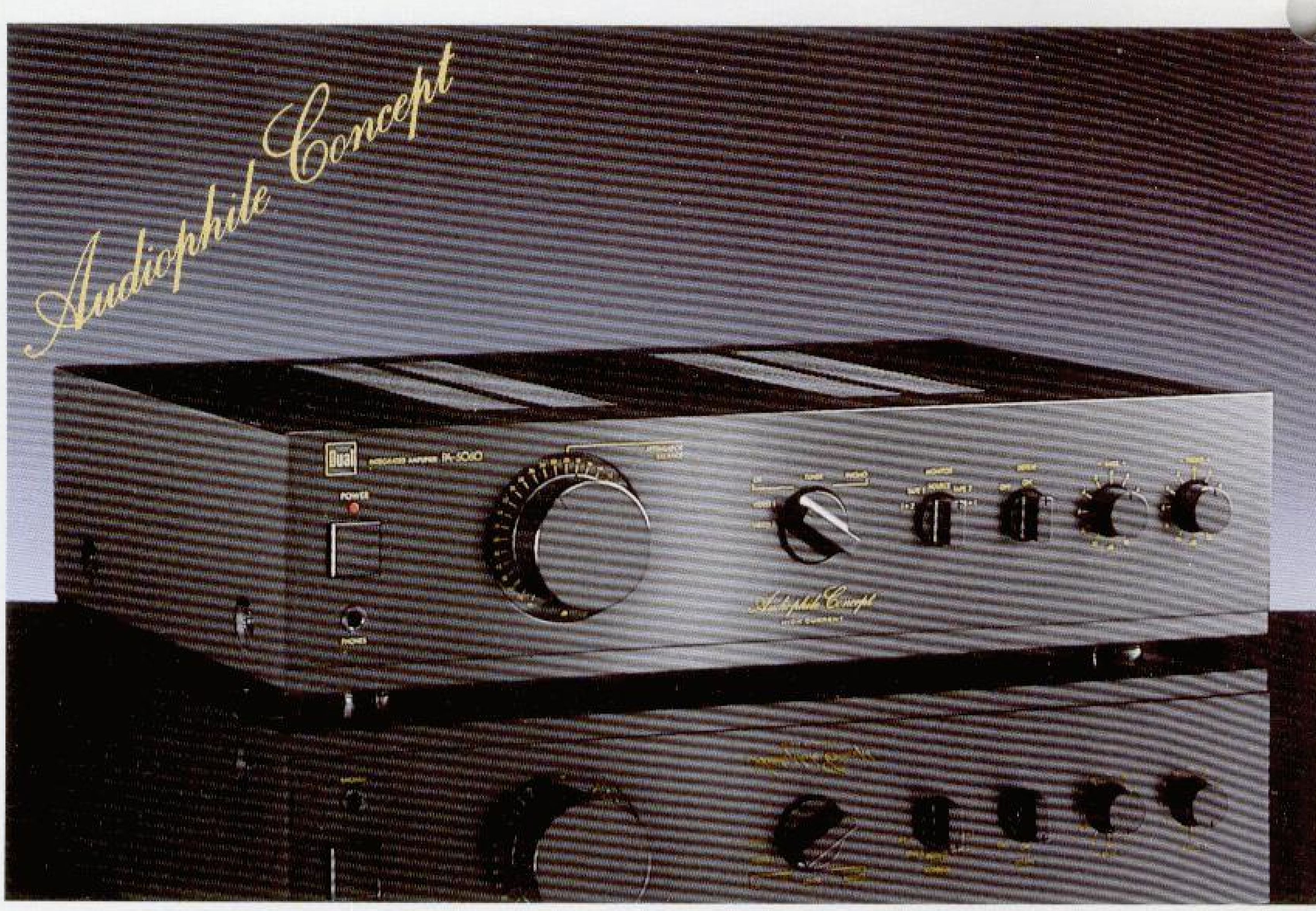
It takes fullness of sound to bring the music alive.

Dual PA 5060

Engineered for powerful performance.

An audiophile full-range amplifier with the technology to satisfy every desire.

- High pulse power: 2 × 85 watts at 8 ohms, 2 × 130 watts at 4 ohms, 2 × 170 watts at 2 ohms.
- Special high-power transformers and capacitors.
- 7 inputs
- Gold-plated connectors for phono and CD
- Headphones output
- Direct tape-to-tape recording
- Defeat circuit
- Heavy-duty chassis





Dual PA 5030

Super spec. Great sound.

A full-range amplifier that's full of features. Audiophile class, of course.

- High pulse power: 2 × 45 watts at 8 ohms, 2 × 65 watts at 4 ohms, 2 × 85 watts at 2 ohms.
- Special high-power transformers and capacitors
- 7 inputs
- Gold-plated connectors for phono and CD
- Headphones output
- Direct tape-to-tape recording
- Heavy-duty chassis

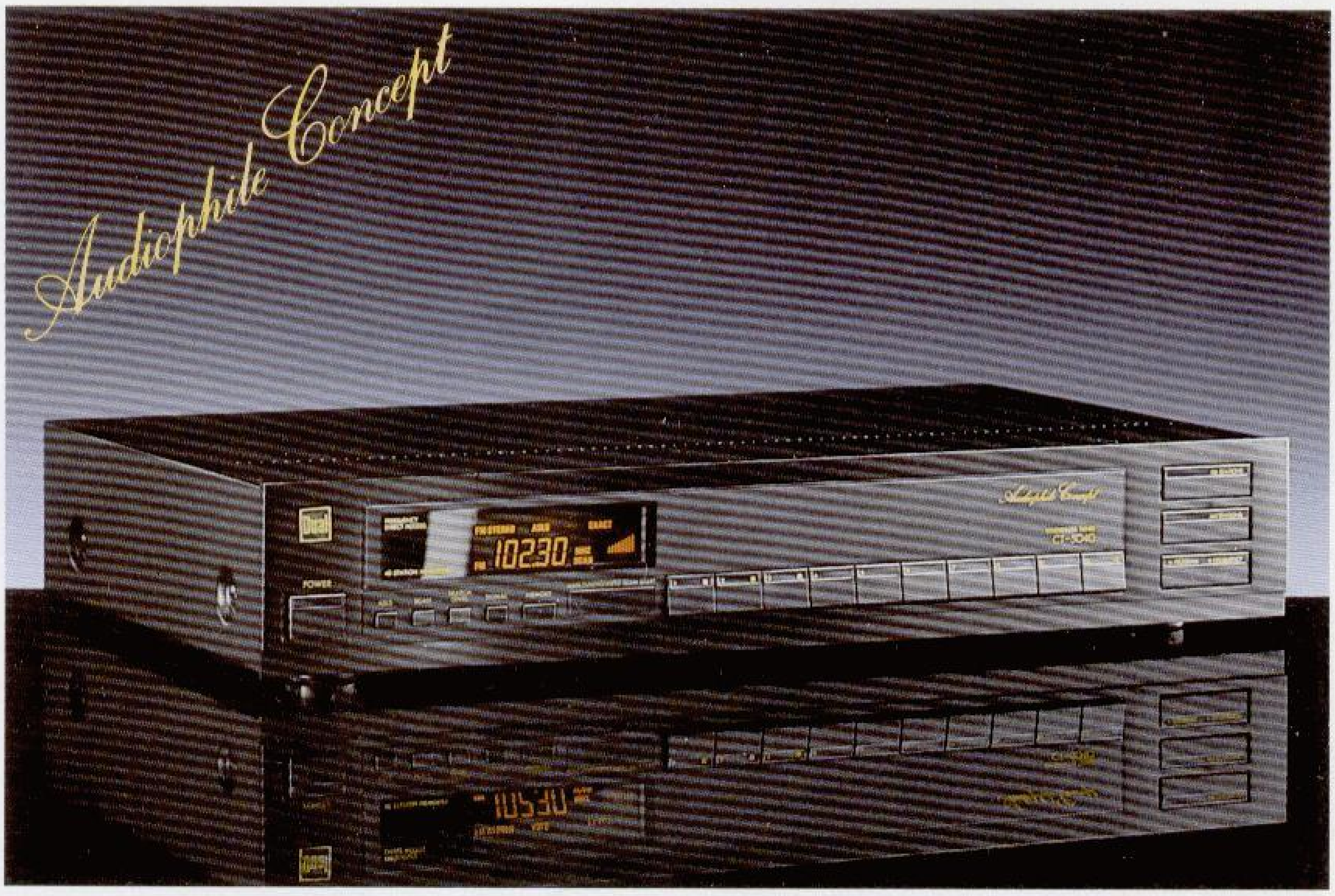
Advanced computer technology opens the door to a new era.

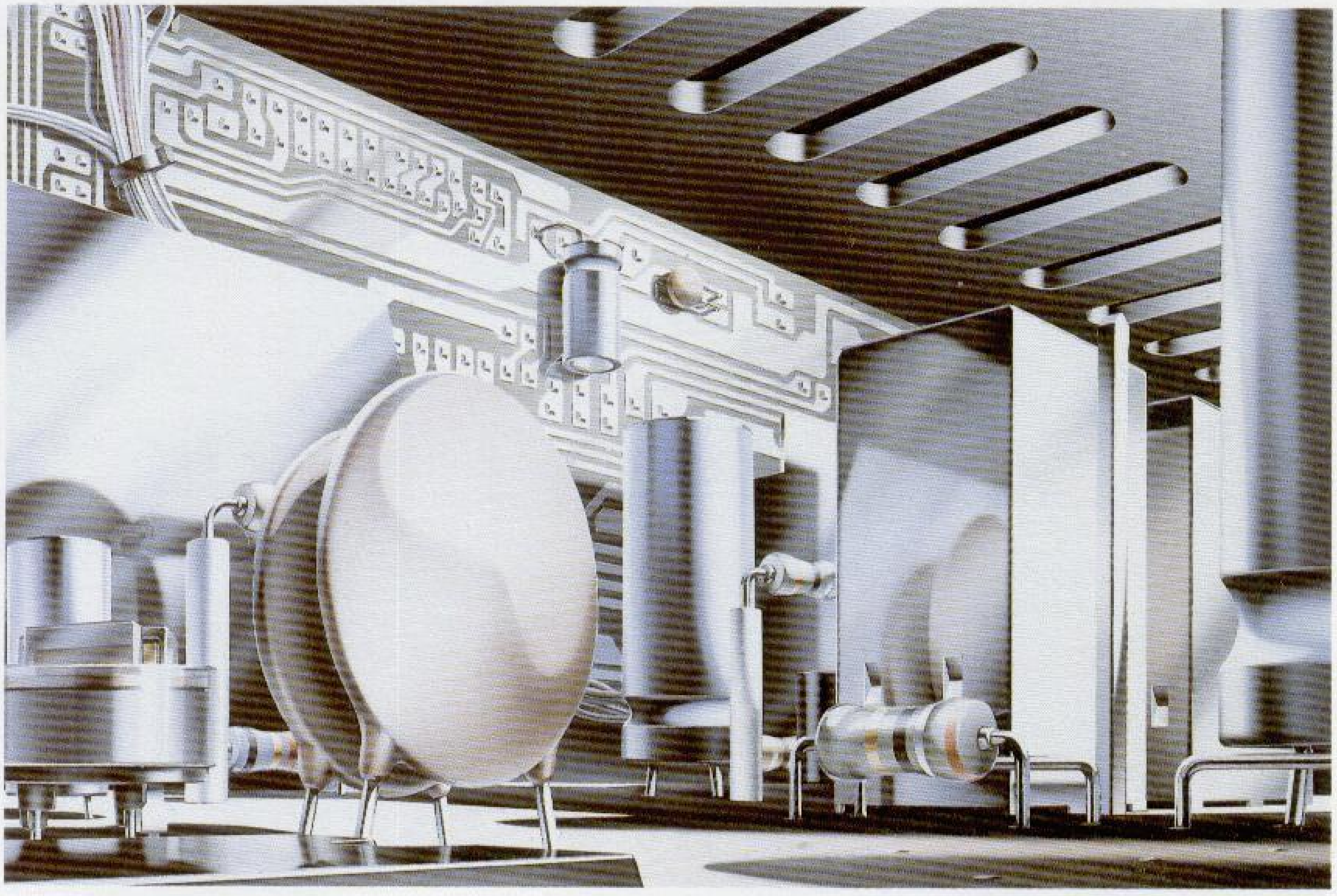
Dual CT 5040

Pure bred for pure pleasure.

This is the Hi-Fi stereo quartz synthesizer tuner from the "Audiophile Concept". That means professional technology wrapped in exclusive design.

- 3 wavebands (FM, MW, LW)
- Quartz-precision station selection in 10 kHz steps
- Digital display of frequency and storage location
- Manual and automatic station search
- Adjustable search sensitivity
- Direct frequency input
- 40 storage locations
- Automatic preset and preset play selection
- Memory contents remain intact in the event of mains failure
- Muting circuit between stations
- Built-in ferrite aerial





Compact Disc Player



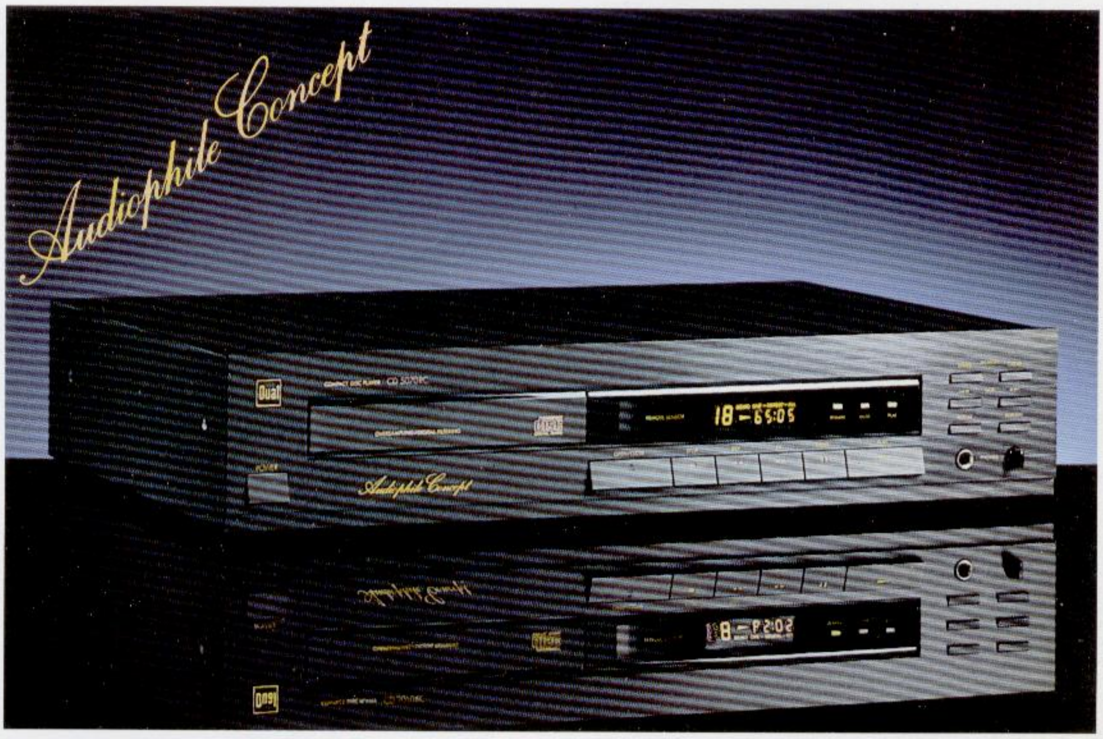
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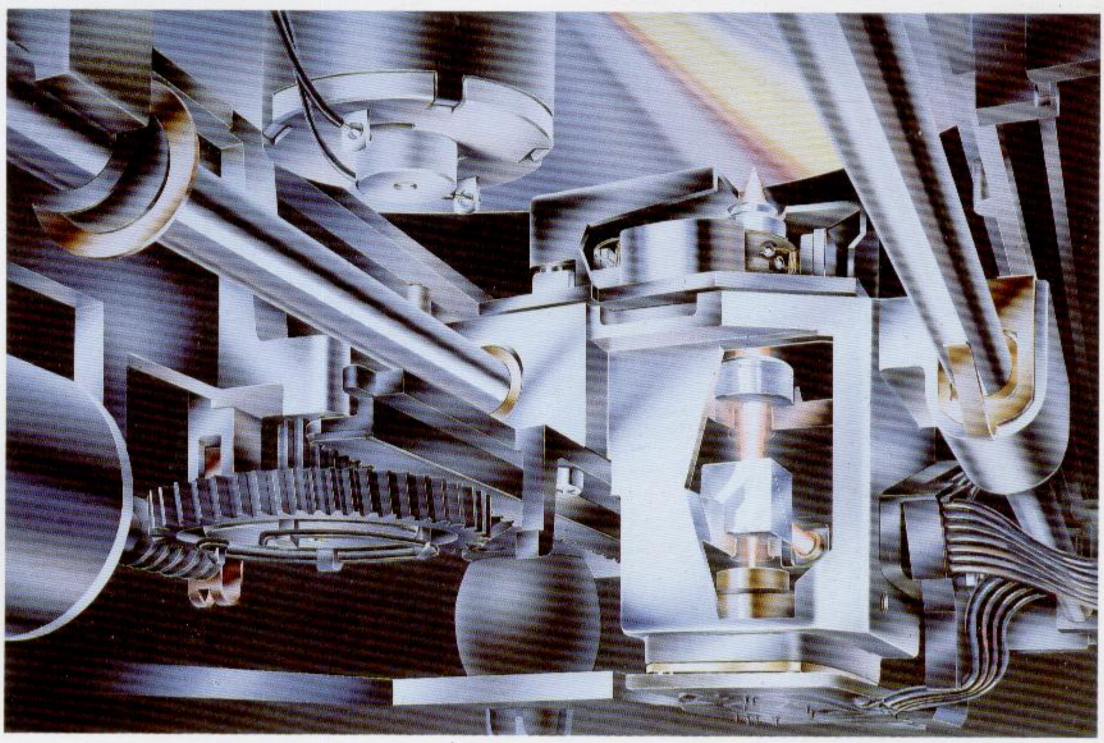
Dual CD 5070 RC

A virtuoso among CD players.

An audiophile CD player with superb reproduction quality.

- Front loader
- Motorised drawer system
- 3-beam laser pickup
- High speed 16-bit converter
- Dual oversampling
- Digital and LC filter
- 6-digit multi-function display for playing time elapsed and remaining, plus track number. Displays for play, repeat, memory, pause
- Programming of up to 16 music tracks
- Direct access to the individual music tracks via numeric keypad on the remote control
- Search functions in both directions
- Step-back function for starting from the beginning of the last track
- Repeat function for repeating the track, the program or the whole CD
- Infra-red remote control
- Variable headphones output
- Metal fascia







6-digit display on a Dual CD player.

Convenience comes as standard with technology for the future.

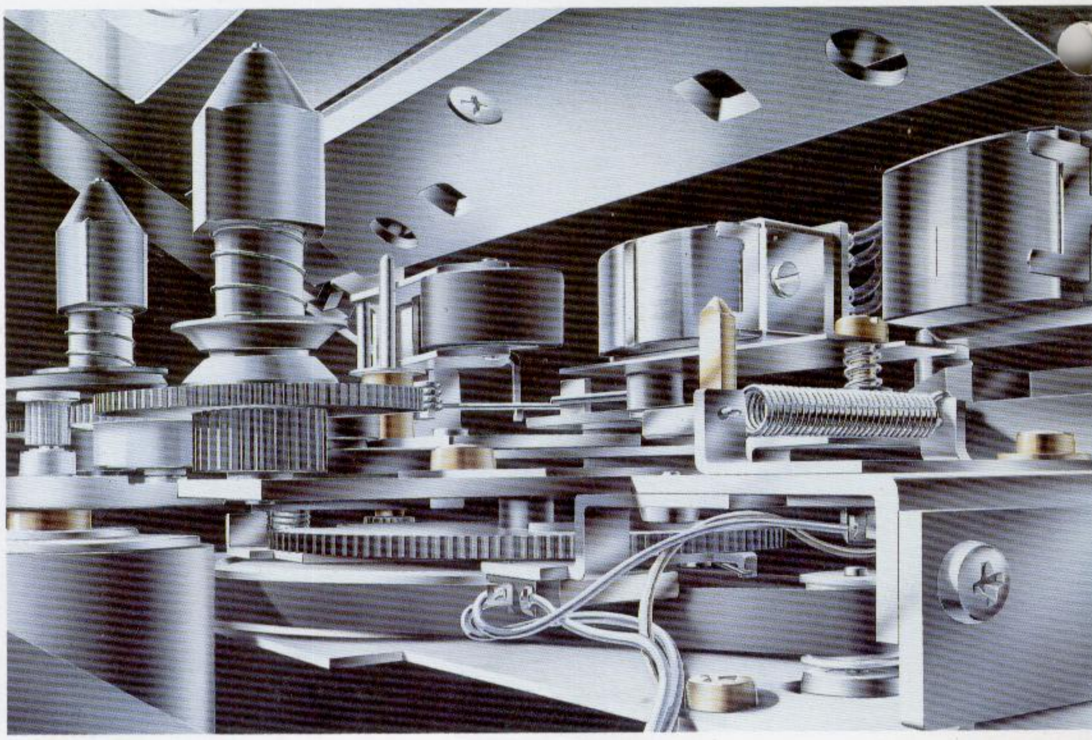
Dual CC 5850 RC

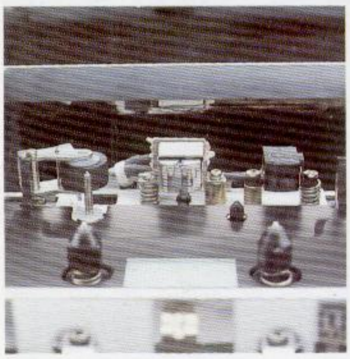
Audiophile Hi-Fi dynamics.

This unit represents the state of the art in Hi-Fi stereo cassette deck technology. Complete with infra-red remote control for all main functions (in conjunction with the Dual CR 5950 RC receiver).

- Computer-controlled 2-motor cassette drive
- Amorphous audio head
- Dolby B and C* Noise Reduction
- HX Pro for optimum treble recording control
- Music finder for locating the next music track
- Automatic tape selector
- Record level display with peak hold
- Bias adjustment: adjustable premagnetization
- Separate balance control
- Switchable MPX filter
- Repeat function
- Memory function
- Record mute function
- Headphones output
- All-metal chassis with aluminum fascia







Dual Hi-Fi cassettedeck showing the 3-head arrangement

Hi-Fi Cassette Deck



Hi-Fi Turntables

Model	Golden 1	CS 5000	CS 505-3	CS 455	CS 450	CS 431
Type	Hi-Fi semi-automatic	Hi-Fi semi-automatic	Hi-Fi semi-automatic	Hi-Fi automatic	Hi-Fi semi-automatic	Hi-Fi semi-automatic
Motor	Electr. DC quartz	Electr. DC quartz	16-pole synchronous	Electr. DC	Electr. DC	Electr. DC
Drive system	Belt	Belt	Belt	Belt	Belt	Belt
Speed rpm	33/45/78	33/45/78	33/45	33/45	33/45	33/45
Wow and flutter ± % DIN/WRMS	0.023/0.013	0.025/0.015	0.06/0.035	0.07/0.04	0.07/0.04	0.08/0.05
Rumble dB	58	56	52	48	48	46
Signal-to-noise ratio dB	80	80	75	72	72	68
Cartridge	without	without	without	without	without	without
	Preferable MC.					
	For cartridges with	For cartridges with	For cartridges with	For cartridges with	For cartridges with	For cartridges with
	weights between	weights between	weights between	weights between	weights between	weights between
	3 and 10 g	3 and 10 g	3 and 10 g	3 and 10 g	3 and 10 g	3 and 10 g
Dimensions/Finish						
Dimensions (width × height × depth) mm	440 × 143 × 380	440 × 129 × 380	440 × 138 × 368	440 × 119 × 360	440 × 119 × 360	440 × 119 × 360
Weight kg	8.0	7.4	6.5	5.9	5.8	5.4
Mains voltage V	120	120	120	120	120	120
Mains frequency Hz	60	60	60	60	60	60
Finish	Wood console with brilliant, high gloss finish in Black	Wood console with real wood veneer Walnut	Wood console with real wood veneer Walnut	Wood console with foil-coated surface in Black finish	Wood console with foil-coated surface in Black finish	Wood console with foil-coated surface in Black finish
		Black	Black			

Indicated values are typical values. Rumble, wow and flutter measured with lacquer disc.

Hi-Fi Receivers, Hi-Fi Amplifiers

Technical Data (typical values)	CR 5950	CR 5900	PA 5060	PA 5030
Rated power at 8 ohms, both channels driven DIN, 1 kHz 1.0% THD	2 × 70 watts	2 × 45 watts	2 × 70 watts	2 × 35 watts
IHF, 20 Hz – 20 kHz, 0.03% THD	2 × 60 watts	2 × 35 watts	2 × 60 watts	2 × 30 watts
Dynamic power, 8 ohms (10 cycles 1 kHz, 1 sec repeat)	2 × 85 watts	2 × 65 watts	2 × 85 watts	2 × 45 watts
Dynamic power, 4 ohms (10 cycles 1 kHz, 1 sec repeat)	2 × 130 watts	2 × 90 watts	2 × 130 watts	2 × 65 watts
Dynamic power, 2 ohms (10 cycles 1 kHz, 1 sec repeat)			2 × 170 watts	2 × 85 watts
Peak current capability (10 cycles 1 kHz, 1 sec repeat)			21 amperes	15 amperes
Power bandwidth, – 3 dB	10 to 70,000 Hz	10 to 50,000 Hz	6 to 90,000 Hz	6 to 90,000 Hz
Damping factor (40 Hz to 12.5 kHz, 8 ohms)	80	40	80	60
Slew rate			30 V/uS	30 V/uS
Total harmonic distortion – 6 dB/1 kHz	0.02%	0.02%	0.01%	0.03%
Intermodulation distortion 60 Hz/1 kHz, 4 : 1	0.05%	0.05%	0.02%	0.05%
Input sensitivity, moving coil			0.2 mV	0.2 mV
Input sensitivity, moving magnet	2.5 mV	2.5 mV	2.5 mV	2.5 mV
Input sensitivity, CD/Tape/Aux	150 mV	150 mV	200 mV	200 mV
Frequency response (tuner, CD, tape, video)	20 to 20,000 Hz ± 0.5 dB	20 to 20,000 Hz ± 0.5 dB	20 to 20,000 Hz ± 0.4 dB	20 to 20,000 Hz ± 0.4 dB
Frequency response (phono RIAA)	20 to 20,000 Hz ± 1.0 dB	20 to 20,000 Hz ± 1.0 dB	20 to 20,000 Hz ± 1.0 dB	20 to 20,000 Hz ± 1.0 dB
Signal-to-noise ratio, MC input (unweighted/A weighted)			65/70 dB	65/70 dB
Signal-to-noise ratio, mm input (unweighted/A weighted)	75/80 dB	70/75 dB	73/78 dB	73/78 dB
Signal-to-noise ratio, CD input (unweighted/A weighted)	95/100 dB	90/95 dB	95/100 dB	95/100 dB
Crosstalk 1 kHz	80 dB	80 dB	80 dB	80 dB
Tone control range (100 Hz/10 kHz)	± 9 / ± 9 dB	± 9 / ± 9 dB	± 10 / ± 10 dB	± 10 / ± 10 dB
Dimensions/Finish				
Dimensions (W × H × D, in inches)	17.3 × 4.8 × 11.8	17.3 × 4.8 × 11.8	17.3 × 4.3 × 11	17.3 × 4.3 × 11
Power requirements	120 V AC, 60 Hz	120 V AC, 60 Hz	120 V AC, 60 Hz	120 V AC, 60 Hz
Finish	– S –, black anodized metal fascia	– S –, black anodized metal fascia	– S –, black anodized metal fascia	– S –, black anodized metal fascia

Hi-Fi Tuner

Technical Data (typical values)	CT 5040
Usable sensitivity (IHF, 75 ohms)	10.8 dBF/1.5 µV
Stereo 50 dB quieting sensitivity (75 ohms)	35 dBF
Signal-to-noise ratio (mono, A weighted)	76 dB
Signal-to-noise ratio (stereo, A weighted)	70 dB
Frequency response (± 1.5 dB)	20 to 16,000 Hz
Stereo separation (1 kHz)	45 dB
Capture ratio	2 dB
Alternate channel selectivity (± 400 kHz)	70 dB
AM rejection	55 dB
Image rejection	75 dB
IF rejection	110 dB
Spurious rejection	110 dB
Distortion, THD	0.2%
AM tuner section:	
Sensitivity (internal antenna)	250 µV
Sensitivity (external antenna)	30 µV
Selectivity	45 dB
Audio response (– 6 dB)	40 to 2500 Hz
Signal-to-noise ratio	48 dB
Distortion	0.5% THD
Dimensions (W × H × D, in inches)	17.3 × 3.0 × 9.6
Power requirements	120 V AC, 60 Hz
Finish	– S –, black anodized metal fascia

Hi-Fi Cassette Deck

Technical Data (typical values)	CC 5850
Tape speed	4.75 cm/sec
Wow and flutter ± WRMS %	0.05
DIN Record/Playback ± %	0.10
Frequency response within ± 3%	
Fe tape	30 – 15000 Hz
Cr tape	30 – 17000Hz
Metal tape	30 – 18000 Hz
Weighted signal-to-noise ratio	
Dolby OFF	60 dB
Dolby ON B	68 dB
Dolby ON C	76 dB
Distortion at 0 dB	0.5%
Crosstalk attenuation at 1 kHz	
between stereo channels	40 dB
between opposite channels	75 dB
Erasure at 1 kHz	70 dB
Inputs (sensitivity for 0 dB) Cinch	60 mV
Outputs (voltage 0 dB, 200 nW/m) Cinch	700 mV
Dimensions (W × H × D, in inches)	17.3 × 4.8 × 11.8
Power requirements	120 V AC, 60 Hz
Finish	– S –, black anodized metal fascia

Compact Disc Player

Technical Data (typical values)	CD 5070 RC
D/A converter	16 bit high-speed
Tracking frequency	88.2 kHz
Filter	Digital and L/C
Frequency response (± 1 dB)	5 . . . 20,000 Hz
Dynamic range	96 dB
Signal-to-noise ratio	96 dB
Total harmonic distortion THD, (1 kHz/20 Hz – 20 kHz)	0.003% / 0.006%
Channel separation (1 kHz)	90 dB
Wow and flutter	± 0.001%
Output voltage / sockets	2 V/cinch
Max. programmable music titles	16
Headphones	6.35 mm coax.
Remote control	
Principle/functions	Infra-red/23
Dimensions (W × H × D, in inches)	17.3 × 3.5 × 11
Power requirements	120 V AC, 60 Hz
Finish	– S –, black anodized metal fascia
Accessories	IR remote control RC 75 with batteries, cinch cable

Australia: The Falk Electrosound Group, P.O. Box 234, Rockdale N.S.W. 2216. **Belgium:** Electronic Engineering S.A., Rue des Aduatiques 71/75, 1040 Bruxelles. **Denmark:** Elton Electronics A.S., Dronning Olgas VEJ 20–22, 2000 Kopenhagen F. **England:** Hayden Laboratories Ltd., Hiltern Hill, Chalfont St. Peter, Bucks SL9 9UG. **Finland:** Televox Oy, Atomitie 5, 00370 Helsinki 37. **France:** Dual France, 16, Avenue du Vert Galant, 95 310 St. Ouen l'Aumône. **Greece:** Lambropoulos Bros. Ltd., Serifou + Slianou Str., Soliatsou Square, Athens 817. **Japan:** Ortofon Japan Co. Ltd., Ochanomiui-Fujiya, Miura-Building, 2-2-6 Yushima, Bunkyo-ku, Tokyo 113. **Canada:** Noresco Canada Inc., 50 Wingold Avenue, Toronto, Ontario M6B 1P7. **Luxembourg:** Sogel S.A., 1, Dernier Sol, Luxembourg. **Netherlands:** Rema Electronics B.V., Isarweg 6–8, 1005 Amsterdam-Sloterdijk. **Norway:** Lydconsult, Markveien 32, 0554 Oslo 5. **Austria:** ECE Wien, Erlachgasse 116, 1100 Wien. **Portugal:** EHP Singer, Rua d. Luis I, 7–4, 1293 Lisboa/Codex. **Sweden:** NCC AB, Snidesvägen 10–12, 17141 Solna. **Switzerland:** Seyffer & Co. AG, Hohlstr. 550, 8048 Zürich. **Spain:** Jobisa S.A., C./Vergel 8, 3700 Denia (Alicante). **U.S.A.:** Ortofon Inc., 122 Dupont Street, Plainview N.Y. 11803.

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Printed in Germany, Wachterdruck, Bönnigheim. 10.12.88